

ABSTRACT

A chamber seal device is provided to seal a wafer stage chamber assembly to isolate semiconductor substrates, a wafer stage device, and the process of making semiconductor wafers from an atmospheric condition, so that the resulted wafers have an improved quality and meet certain wafer manufacturing specifications. The wafer stage chamber assembly includes a wafer stage chamber, a top wall and a base frame. The wafer stage chamber assembly is supported by an apparatus frame of an exposure apparatus via a plurality of body supports. Due to the limited access around the exposure apparatus, the chamber seal device of this invention provides a simple and quick mechanism to seal the wafer stage chamber assembly. The chamber seal device includes one or more o-ring seals positioned in between and surrounding the perimeter of the wafer stage chamber and the top wall, or the wafer stage chamber and the base frame to seal the wafer stage chamber assembly. The chamber seal device may include a plurality of pins surrounding a perimeter of the wafer stage chamber for insertion into a corresponding plurality of openings on the perimeter of the top wall or the base frame, and at least one keyhole strip for insertion into the pin to slidably lock them. Alternatively, the chamber seal device may include at least one clamp channel to fasten the perimeter of the wafer stage chamber with the perimeter of the top wall or the base frame.